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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/917,438 | 07/27/2001 | Fan Zhong | LWM-A102 | 9712 |

7590 03/31/2003

WAGNER, MURABITO & HAO LLP
Two North Market Street, Third Floor
San Jose, CA 95113

EXAMINER

COLEMAN, WILLIAM D

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2823

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/917,438

Applicant(s)

ZHONG ET AL.

Examiner

W. David Coleman

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 15-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I invention, claims 1-14 in Paper No. 5 is acknowledged.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russell et al., U.S. Patent 5,648,175 in view of Akwani et al., U.S. Patent Application Publication No. US 2002/0154878 A1.

4. Pertaining to claims 1, 7, 8 and 14, Russell discloses a semiconductor substantially as claimed. Russell teaches a method of depositing a top clad layer. The method comprising the steps of

- a) providing a flow rate for a Ge dopant gas for a SiO₂ top clad layer deposition; b) providing a flow rate for a P dopant gas for the top clad layer deposition;
- c) providing a flow rate for a B dopant gas for the top cladding layer deposition; and
- d) controlling the flow rates for the Ge dopant gas, P dopant gas, and B dopant gas to form the top clad layer, thereby eliminating the formation of crystallization areas within the top clad layer.

However, Russell fails to form an optical waveguide of a planar lightwave circuit. Akwani

Art Unit: 2823

teaches forming an optical waveguide of a planar lightwave circuit. In view of Akwani, it would have been obvious to one of ordinary skill in the art to incorporate the optical waveguide in the Russell semiconductor process because planar optical devices are typically designed for use with silica optical telecommunications [0005].

5. Pertaining to claims 2 and 9, Russell teaches the method of claim 1, wherein the controlling of the flow rates for the Ge dopant gas, the P dopant gas, and the B dopant gas is configured to increase refractive index stability of the top clad layer across an anneal temperature range from 900C to 1050C.

6. Pertaining to claim 3 and 10, Russell teaches the method of claim 1, wherein the controlling of the flow rates for the Ge dopant gas, the P dopant gas, and the B dopant gas is configured to reduce a number of deposition and anneal cycles required for depositing the top clad layer.

7. Pertaining to claims 4 and 11, Russell teaches the method of claim 1, wherein the B dopant gas comprises B_2H_6 or $B(OCH_3)_3$, tetramethyl borate (TMB).

8. Pertaining to claims 5 and 12, Russell teaches the method of claim 1, wherein the Ge dopant gas comprises GeH_4 , Ge_2H_6 or $Ge(C_2H_5O)_4$. (see column 5, line 21)

Art Unit: 2823

9. Pertaining to claims 6 and 14, Russell teaches the method of claim 1, wherein the P dopant gas comprises PH₃ or P(CH₃)₃ tetramethyl phosphite (TMP).

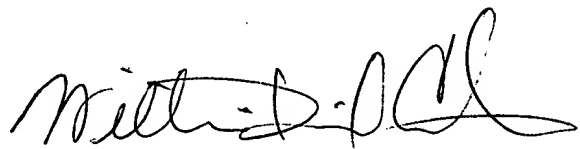
Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 703-305-0004.

The examiner can normally be reached on 9:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



W. David Coleman
Examiner
Art Unit 2823

WDC
March 20, 2003